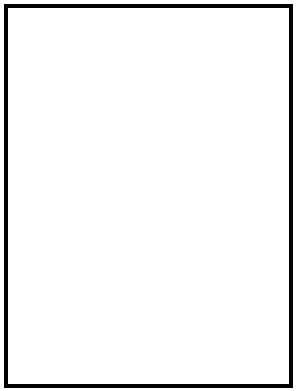
The Coxeter-James Lectureship was inaugurated in 1978 to recognize young mathematicians who have made outstanding contributions to mathematical research and is presented in conjunction with the Canadian Mathematical Society's Winter Meeting.

La conférence Coxeter-James, créée en 1978, rend hommage aux jeunes mathématicien(ne)s qui se sont distingués par leur apport exceptionnel à la recherche en mathématiques. Elle est présentée dans le cadre de la réunion d'hiver de la Société mathématique du Canada.

RECIPIENTS / RÉCIPIENDAIRES

1978	R. Moody
1979	D. Boyd
1980	F. Clarke
1981	J. Millson
1982	J. Mallet-Paret
1983	M.D. Choi
1984	M. Goresky
1985	P. Selick
1986	E. Perkins
1987	J. Borwein
1988	R. Murty
1989	A. Dow
1990	N. Ghoussoub
1991	K. Murty
1992	J.F. Jardine
1993	J. Hurtubise
1994	M. Spivakovsky
1995	G. Slade

The 18th Coxeter-James Lecture
La 18ième Conférence Coxeter-James



Gordon Slade
McMaster University

CMS Winter 1995 Meeting
Réunion d'hiver 1995 de la SMC
Vancouver, BC
December 9, 1995 / 9 décembre 1995

BIOGRAPHICAL INFORMATION
DONNÉES BIOGRAPHIQUES

Gordon Slade was born in Toronto in 1955. He received his B.A.Sc. in Engineering Science and M.Sc. in mathematics from the University of Toronto, before moving to the University of British Columbia here he received his Ph.D. in mathematics in 1984. Following apostdoctoral position at the University of Virginia he moved to McMaster University in 1986, where he is currently professor of mathematics.

He has held visiting positions in several countries and gave an invited lecture at the International Congress of Mathematicians in Zurich in 1994. His monograph (with N. Madras) "The Self-Avoiding Walk" was published by Birkhauser in 1993.

CITATION

Gordon Slade has worked in several areas of probability and mathematical physics and has an international reputation as a leading scientist. He has intensively exploited the "lace expansion" as a method of studying weakly self-avoiding walks. Although the initial conception was not his, he and his collaborators developed into a powerful method, which he has used in a variety of settings to solve a wide collection of important problems in interactive systems. His superb understanding and application of difficult technique has provided one the fundamental methods for studying physical systems of great geometrical complexity. His program required deep mathematical and physical insight, as well as sophisticated technique, especially impressive to the expert.

ABSTRACT / RÉSUMÉ

Polymers, Percolation and Critical Exponents
Linear polymer molecules are modelled by self-avoiding walks and branched polymers are modelled by lattice trees and lattice animals. It is widely believed that the number and typical size of self-avoiding walks and of lattice trees and animals are governed by dimension-dependent universal critical exponents. Similar critical exponents arise in percolation theory, an elementary model of a phase transition of interest in probability theory and statistical mechanics. This lecture describes joint work with Takashi Hara proving existence of critical exponents for these models in high dimensions, using a method known as the lace expansion.